

REMARKS

Claims 21-32 are pending in the application. Claims 21, 24, 25, and 28 have been amended. The amendment is fully supported by the original disclosure. No new matter has been introduced. Reconsideration and allowance of claims 21-32 in view of the following remarks is respectfully requested.

Request for finality to be withdrawn:

The examiner has made this office action final, based on applicant's amendment necessitating the new grounds of rejection. The applicant respectfully requests the examiner withdraw the finality of this office action.

The applicant's Amendment A was entered only to overcome a section 112 rejection for indefiniteness for use of the term cholesterol. All claims rejected for prior art were cancelled. The examiner cited the specification at page 5 for the section 112 rejection, and the applicant responded by incorporating the definition of cholesterol from the specification at page 5 into the claims. Thus, the claims 21-32 (directly corresponding to original claims 3-5, 10, 16-18, 20, 2, 11, 12, and 14) had not been rejected on their merits until the present office action of June 18, 2002.

In the present office action the examiner has rejected claims 21-23 on their merits, and made the rejection final. Applicant asserts that the finality of rejection is unfounded, and requests the examiner withdraw said finality, since this is the first rejection of claims 21-32 on their merits.

In the absence of the examiner withdrawing the finality, applicant respectfully requests the examiner at least enter the amendment for purposes of future appeal.

The rejection of claims 21-32 under 32 U.S.C. § 112:

The examiner has rejected claims 21-32 for indefiniteness, for use of the terms "cholesterol" and "benzene." Applicant has amended the claims and the specification to replace cholesterol with "fatty substance" and to replace benzene with "benzene derivative." Applicant respectfully submits that claims 21-32 are now definite, and particularly point out and distinctively claim the subject matter which applicant regards as the invention.

The rejection of claims 21-24 and 28-32 under 35 U.S.C. § 103:

Claims 21-24 and 28-32 stand rejected as being obvious in view of U.S. Patent No. 6,080,415 issued to Simon (hereinafter "Simon") and further in view of U.S. Patent No. 5,188,815 issued to Coates (hereinafter "Coates"), U.S. Patent No. 6,346,237 issued to Lemann et al. (hereinafter "Lemann"), and U.S. Patent No. 5,656,668 issued to Motion et al. (hereinafter "Motion"). Applicant disagrees with the examiner's conclusion and traverses the rejection for the following reasons. First, the examiner has not established a *prima facia* case of obviousness because there is no suggestion or motivation either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the references or to combine the reference teachings to arrive at the present invention. Second, the examiner has also failed to establish *prima facia* case of obviousness since the prior art reference do not teach or suggest all the claim limitations of applicant's independent claims 21, 24, and 28.

Regarding claim 21, amended claim 21 recites a thermoset resin forming "an outer shell of a chromic cell enclosing the fatty substance and dye within." Applicant asserts, that none of the references alone or in combination teaches this limitation of claim 21. Accordingly, applicant submits that independent claim 21 is not obvious in view of the suggested combination.

Referring to independent claim 24, amended claim 24 recites a thermochromic composition comprising "a thermoset resin, fatty substance, water, and dye." Additionally, claim 24 recites a photochromic composition comprising "a benzene derivative in the binder." Applicant asserts that none of the references alone or in combination teach or suggest either of these limitations of claim 24. Accordingly, applicant submits that independent claim 24 is not obvious in view of the suggested combination.

Regarding independent claim 28, amended claim 28 recites limitations similar to applicant's independent claim 24. Accordingly, applicant asserts that independent claim 28 is likewise not obvious in view of the proposed combination for at least the reasons discussed above for claim 24.

Given that claims 22, 23, and 29-32 depend from independent claim 21, applicant submits that claims 22, 23, and 29-32 are likewise not obvious for at least the reasons discussed above.

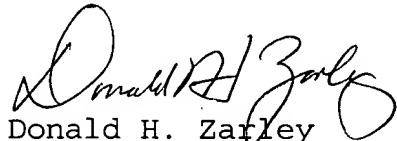
#### CONCLUSION

In view of the above amendments and remarks, applicant believes claims 21-32 are in condition for allowance, and applicant respectfully requests allowance of such claims. If any issues remain that may be expeditiously addressed in a

telephone interview, the examiner is encouraged to telephone the undersigned at 515/558-0200.

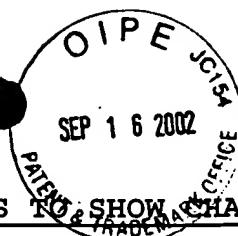
No fees or extensions of time are believed to be due in connection with this amendment; however, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account 50-2098.

Respectfully submitted,



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In the Specification:

The paragraph beginning at page 3, line 7, has been deleted and replaced with a new paragraph as follows:

The present invention relates to a reversible thermochromic and/or photochromic cosmetic composition for use in aqueous hair and skin product formulations. The invention involves the formation of thermochromic cells having a thermoset resin protective shell on the outside, and a mixture of water, ~~cholesterol~~fatty substance, and dye on the inside. Photochromic cells of this invention combine benzene derivative with a binder, and optionally a nitrate salt, such as potassium or sodium nitrate.

The paragraph beginning at page 5, line 17, has been deleted and replaced with a new paragraph as follows:

The next ingredient of the thermochromic cells of this invention is from about 15-45% by weight of ~~cholesterol~~fatty substance. From about 25-35% by weight cholesterol is preferred and about 28% is most preferred. As used herein, the term "~~cholesterol~~fatty substance includes, but is not limited to, designates the compound C<sub>27</sub>H<sub>15</sub>OH, as well as one or any mixture of straight chain monobasic carboxylic acids and associated fatty acids from edible fats and oils, including animal and plant oils formed from fatty acid esters of polyols, in particular liquid triglycerides, for example sunflower oil, corn oil, soybean oil, marrow oil, grapeseed oil, sesame oil, hazelnut oil, apricot oil, almond oil, fish oils, glyceryl triapropylate, or plant or animal oils of formula R<sub>1</sub>COOR<sub>2</sub> in which R<sub>1</sub> represents a higher fatty acid residue containing from 7-19 carbon atoms and R<sub>2</sub> represents a branched hydrocarbo-based chain containing from 3 to 20

carbon atoms, for example purcellin oil, liquid paraffin, liquid petroleum jelly, perhydrosqualene, wheatgerm oil, beauty-leaf oil, sesame oil, macadamia oil, grapeseed oil, rapeseed oil, coconut oil, grondnut oil, palm oil, castor oil, jojoba oil, olive oil, or cereal germ oil, fatty acid esters, alcohols, acetaylclycerides, octanoates, decanoates, or ricinoleates of alcohols or of polyalcohols, fatty acid triglycerides, glycerides, fluoro oils, and perfluoro oils, as well as synthetic oils, such as Olestra™.

The paragraph beginning at page 7, line 20, has been deleted and replaced with a new paragraph as follows:

Photochromic cells made in accordance with this invention include a benzene derivative as a primary ingredient. Appropriate benzenes derivatives include, but are not limited to, m-[(p-aminophenyl)azo]benzenesulphonic acid, m-[(4-amino-3-methoxyphenyl)azo]benzenesulphonic acid, 1-naphthylamineazobenzene-4-sulphonic acid, 2'-aminoazobenzene-2-sulphonic acid, 2-phenylazo-p-cresol, 3'-aminoazobenzene-3-sulphonic acid, 4-(4-dimethylaminophenylazo)phenyl, arsonic acid, 4-(4-nitrophenylazo)-resorcinol, 4-(N,N-dimethylamino)azobenzene-4'-isothiocyanate, 4,4'-diaminoazobenzene 4,4'-diethoxyazobenzene, 4-N,N-dimethylaminoazobenzene-4'-isothiocyanate, 4-amino-2',3-dimethylazobenzene hydrochloride, 4-amino-4'-dimethylaminoazobenzene, 4-aminoazobenzene, 4-aminoazobenzene-3,4'-disulphonic acid, 4'-aminoazobenzene-4-sulphonic acid, 4'-aminoazobenzene-4-sulphonic acid (sodium salt), 4-aminoazobenzene-4'-sulphonic acid sodium salt, 4-dimethylamino-2-methylazobenzene, 4-dimethylamino-2'2-methoylazobenzene, 4-dimethylamino-3'-methylazobenzene, 4-dimethylamino-4'-methylazobenzene, 4-

dimethylaminoazobenzene, 4-dimethylaminoazobenzene 4'-isothiocyanate, 4-dimethylaminoazobenzene-4'-sulphonyl chloride, 4-hydroxyazobenzene, 4-hydroxyazobenzene-4'-sulfonic acid, 4'-hydroxyazobenzene-4-sulphonic acid, 4-methoxyazobenzene, 4-nitrophenyldiazoaminoazobenzene, 4-phenylazo-phenylisothiocyanate, azobenzene, azoxybenzene, chrysoidine, and bariumbis[5-chloro-4-ethyl-2-[(2-hydroxy-1-naphthyl)-azo]benzenesulphonate. Azobenzene is the preferred benzene.

The paragraph beginning at page 8, line 15, has been deleted and replaced with a new paragraph as follows:

The benzene derivative should be used in the photochromic cells in a concentration of at least 10% by weight. The preferred concentration is between about 10-60% by weight. When used in a concentration of at least 30% by weight of the photochromic cell, several of the benzenes, including azobenzene, 4-methoxyazobenzene, azoxybenzene, benzenesulphonate, and 4-hydroxyazobenzene, may be used to impart a red color to the photochromic cells upon exposure to light. Persons skilled in the art can readily ascertain other benzenes derivatives besides those specifically noted that are suitable for this purpose. In concentrations of less than about 30%, these benzenes derivatives do not give the cells a noticeably red color. Even when not included in the photochromic cells for purposes of color, a benzene derivative is included in the cell in a concentration of at least 10% by weight to "activate" other types of color-imparting chemicals as described below.

The paragraph beginning at page 9, line 16, has been deleted and replaced with a new paragraph as follows:

The photochromic compositions may further include a salt that, when exposed to light, is capable of imparting a yellow color to the photochromic cells upon activation by the benzene derivative. This "yellow salt" may be selected from one or more of the group consisting of potassium nitrate, calcium nitrate, calcium citrate, potassium citrate. Potassium nitrate is the preferred yellow salt. The yellow salt in this invention may be included in the cells in a concentration of from about 15-85% by weight, with about 25-75% by weight being preferred and about is 55% being most preferred.

The paragraph beginning at page 10, line 1, has been deleted and replaced with a new paragraph as follows:

When initially placed in the photochromic cells of this invention, the yellow salts and/or blue salts are white/clear crystals. Upon exposure to light, however, the benzene derivative produces metasilicic acid to "activate" the nitrate salts, causing them to change color to blue, yellow, or both, depending on the type(s) of nitrate salts used in the photochromic cells.

The paragraph beginning at page 10, line 6, has been deleted and replaced with a new paragraph as follows:

Based on the above-described interactions between the benzene derivative, yellow salts, and blue salts, it can be readily appreciated that a plethora of different color combinations and effects can be obtained. For example, if a blue salt is included in the formulation with at least 30% by weight of a red-color producing benzene derivative, upon exposure to light, the combination of red from the benzene derivative and the blue from the blue salt will produce a

purple effect. Likewise, if a yellow salt is included with at least 30% by weight benzene derivative, the combination of red from the benzene derivative and yellow salt will produce an orange effect. However, for example, if a blue salt is included with less than 30% benzene derivative, the benzene derivative will not impart a red color to the cells and, thus, the cells will appear blue. Similarly, if a blue salt and a yellow salt are included with less than 30% benzene derivative, the combination of blue and yellow salts will produce a green effect. Further, varying concentrations of the salts may be used to produce different shades and hues.

The paragraph beginning at page 14, line 18, has been deleted and replaced with a new paragraph as follows:

Photochromic cells function in a much different manner from that of thermochromic cells, whether or not a thermoset resin is present in the photochromic formula. The benzene derivative or "activator" responds to light and the amount and/or type light. Light is absorbed into the very dense prismatic structure of the benzene derivative. The light stimulates the benzene derivative into producing metasilicic acid, which reacts with the white prismatic salt molecules, causing them to change color. The removal of light causes the benzene derivative to cease producing metasilicic acid, thereby causing the cell to fall dormant and revert to their original color.

In the Abstract:

The abstract, beginning at page 22, line 2, has been deleted and replaced with a new paragraph as follows:

Novel thermochromic and/or photochromic compositions are described. The thermochromic compositions include a thermoset resin, cholesterol fatty substance, water, and dye, while photochromic compositions include a benzene derivative and a binder, such as silica gel. When mixed, the ingredients of the thermochromic and photochromic compositions form chromic cells with an outer shell comprised of either the thermoset resin (in the case of thermochromic compositions) or potassium nitrate (in the case of photochromic compositions). When the chromic compositions are exposed to either a heat or light stimulus, the chromic cells compress to causing the dye within the cells to no longer be visible, thereby creating a color-changing effect.

In the Claims:

Claims 21, 24, 25, and 28 have been amended as follows:

21. (Amended) A reversible cosmetic composition selected from the group comprising a thermochromic composition, a photochromic composition, and a mixture thereof of thermochromic composition and a photochromic composition, whereby the composition comprises a thermoset resin, a cholesterol fatty substance, water, and a dye, and wherein the cholesterol comprises  $C_{27}H_{45}OH$  as well as one or more of straight chain monobasic carboxylic acids and associated fatty acids from edible fats and oils thermoset resin forms an outer shell of a chromic cell enclosing the fatty substance and dye within.

24. (Amended) A reversible cosmetic composition selected from the group comprising a thermochromic composition, a photochromic composition, and a mixture thereof,

wherein the thermochromic composition and the photochromic composition comprises a thermostat resin, cholesterol fatty substance, water, and dye; and

wherein the photochromic composition comprises a benzene-derivative and a binder, and wherein the cholesterol comprises  $C_{27}H_{15}OH$  as well as one or more of straight chain monobasic carboxylic acids and associated fatty acids from edible fats and oils.

25. (Amended) A method of manufacturing a reversible thermochromic cosmetic composition comprising:

combining a thermoset resin, cholesterolfatty substance, water, and dye to form thermochromic cells; and heating the cells for a time period sufficient to cure the resin,

wherein the cholesterol comprises  $C_{27}H_{15}OH$  as well as one or more of straight chain monobasic carboxylic acids and associated fatty acids from edible fats and oils.

28. (Amended) A method of manufacturing a reversible thermochromic/photochromic composition comprising:

combining thermochromic cells resulting from combining a thermoset resin, cholesterolfatty substance, water, and dye with the photochromic cells resulting from combining a benzene derivative with a binder to form photochromic cells,

wherein the cholesterol comprises  $C_{27}H_{15}OH$  as well as one or more of straight chain monobasic carboxylic acids and associated fatty acids from edible fats and oils.